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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed January 13, 2010 have been fully considered but they are not persuasive.

Regarding claim 1, the Examiner agrees that Auer states, "the circuit of Fig 2 cannot provide sustained current in either winding" (col. 5, lines 5-6; Remarks, page 10). Applicant's conclusion, however, is inaccurate. As long as the two frequencies keep alternating, the relay will be provided with enough current to open the relay (col. 5-6). Once the input signal no longer satisfies the two-frequency requirement, the relay will close because the circuitry of figure 2 is not designed to be able to keep the relay open by itself (col. 6, lines 44-49 and 66-68). The circuitry needs the two alternating frequencies in order to keep the capacitors (161, 162) charged to open the relays. Thus, Auer does not disclose that the circuit of figure 2 can never sustain current in the windings. Rather, the references teaches that the circuit of figure 2 can not sustain current in the windings when the frequencies stop alternating in the proper sequence.

Although Auer discloses that current controls the relay, it would be obvious to one skilled in the art that a voltage potential exists wherever there is current. Figure 2 shows at least three (3) voltage nodes connected to the relay (right side of 161, right side of 162, and mid-node between 154,157). The right sides of capacitors 161, 162 are interpreted as "the two output terminals for providing a control voltage suitable for controlling" a vital relay.

Art Unit: 2836

Regarding claims 12 and 16, Auer meets the amended limitations, as discussed above. Claim 9 is allowable, but applicant is requested to make two changes. Line 4, "a gas valve" should be "the gas valve," since the limitation was already introduced in the preamble. Line 6, "an input" should be "the input" or "the at least one input" since the limitation of an input was already introduced in line 3.

Regarding the double patenting rejection, the limitations added to claims 1, 12 and 16 do not explicitly appear in the claims of the '213 patent. It would be obvious, however, that in a circuit that opens a gas valve upon receiving two successive frequency signals, the circuit would close the valve when the frequencies no longer meet the conditions for opening the gas valve. The double patenting rejection is now a nonstatutory obviousness-type rejection.

Drawings

2. A replacement figure was received on January 13, 2010. This figure is acceptable and will be entered.

Claim Objections

3. Claim 1 is objected to because there are multiple instances of using "a" and "an" (line 7, a control voltage; line 8, a gas valve; line 10, a control voltage; line 13, an output). Each of these should be replaced with "the" or "said," since these limitations have already been introduced earlier in the claim.

4. Claims 2, 7 and 12-16 are objected to for similar reasons. Applicant is requested to review the claims to make sure that proper antecedent basis issues are resolved.

The first time a limitation/component is mentioned, it should be preceded by an "a" or

Art Unit: 2836

"an." Every subsequent mention of the same limitation/component should be preceded by "the" or "said" so that the reader will know that there is only one gas value, input signal, control voltage, etc.

5. Claim 2 is objected to because "in" (line 3) should not have been deleted. The first frequency is applied to or present in the input signal. The frequency would be present at the input (not the input signal). This phrase is properly written in claim 3.

6. Claims 17 and 19 are objected to because independent claim 16 recites that the gas valve controller sends a "gas valve control signal." Claims 17 and 19 recites an "input signal." Either the claims need to be corrected to recite that these two signals are the same or claims 17 and 19 should be changed to match claim 16.

Appropriate correction is required.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Art Unit: 2836

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-8 and 10-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 and 10-15 of U.S.

Patent No. 7,586,213. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 1-6 recite limitations identical to those of claim 1 in the '213 patent. Claim 1 of the present applicant adds the limitation that the control voltage is only maintained as long as the input signal contains the two different successive frequencies. While the '213 patent does not expressly disclose the conditions for removing the control voltage, the patent does claim the exact conditions that must occur for maintaining the control voltage. Therefore, it would be obvious that if those exact conditions ("two different frequency signals succeeded each other in time) do not exist, then the control voltage would not be applied.

Claims 1 and 6-8 recite limitations identical to those of claim 15 in the '213 patent. The "voltage transformer circuit" of pending claims 6- is identical to the "drive circuit" of the '213 patent.

Claims 10-11 recite limitations very similar or identical to those of claims 12, 14, respectively.

Claims 12-15 recite limitations that are identical to those of claims 1 and 15-18 of the '213 patent.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-8 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auer (US 4,118,750).

With respect to claim 1, Auer discloses a fail-safe circuit for a gas valve (abstract; fig 2, items 123-125), comprising: at least one input (131,132) that can be connected to a control device (fig 1, item 102; col. 2, line 46 to col. 3, line 7) for receiving an input signal from the control device, two output terminals (nodes on the right-sides of 161, 162) for providing a control voltage between the two output terminals of the fail-safe circuit that is suitable for opening a gas valve when an input signal containing at least two different successive frequency signals is provided by a control device at the input of the fail-safe circuit (fig 3; col. 3, lines 12-37; col. 4, line 67 to col. 5, line 6; col. 5, line 47 to col. 6, line 49); and

wherein the fail-safe circuit maintains the control voltage between the two output terminals as long as the input signal contains the at least two different successive frequency signal at the input (col. 6, lines 44-49 and 66-68).

Auer discloses that the frequency signals are used to activate “a vital relay.” One skilled in the art would recognize that a gas valve is a vital relay. Further, the limitation that the recited control circuit is “for a gas valve” is interpreted as the end use of the

Art Unit: 2836

device. The Auer failsafe circuit will work the same way regardless of what the relay is designed to open/close.

With respect to claims 2-5, Auer discloses the failsafe circuit includes a charging circuit having at least one capacitor (149A; col. 4, lines 26-28), the charging circuit charges the at least one capacitor exclusively upon application or presence of a first frequency signal in the input signal. Auer discloses that the capacitor charges during application of the first frequency signal and discharges during the second frequency signal. With respect to claim 4, Auer figure 3a shows that the second frequency signal has a lower frequency than the first frequency signal (col. 3, line 12-21).

With respect to claims 6-8, Auer discloses a voltage transformer circuit (124) which produces an output voltage to open the gas valve from a supply voltage when the second frequency signal is applied or is present in the input signal (col. 5-6), the voltage transformer has at least one capacitor (149B, 162) that charges when the second frequency signal is present in the input signal (col. 4, lines 26-28; col. 6, lines 27-43), and continues to provide an output voltage to keep the gas valve open for a period of time when the first frequency signal is present in the input signal (col. 6, lines 44-49). The Auer relay driver (124) is a voltage doubler (i.e. voltage transformer circuit)(col. 6, lines 13-14).

With respect to claim 10, Auer discloses a base frequency range of 600-12000 Hz, while the two signal frequencies about 5% above/below the base frequency. At the time of the invention by applicant, it would have been obvious to one skilled in the art to select a different frequency value, since it has been held that discovering an optimum

Art Unit: 2836

value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The actual frequency values do not matter, so long as the combination of frequencies do not normally appear in nature (col. 1, lines 66-68).

With respect to claim 11, Auer discloses the first time period is followed by the second time period (fig 3a-b). The claim only appears to only define "successively," and does not actually add any limitations to claim 1.

With respect to claims 12-15, Auer discloses the failsafe circuit, as discussed above in the rejection of claim 1. Claim 12 only differs from claim 1 by not including the limitation that the two frequencies are successive. Dependent claims 13-15 recite limitations directed towards the definition of "successive," which is met by Auer, as discussed above.

With respect to claim 16, Auer discloses the apparatus necessary to complete the recited limitations, as discussed above in the rejection of claim 1. Auer discloses that if the frequencies are not properly applied (i.e. successive), then the gas valve is not operated (col. 6, line 50 to col. 7, line 20).

With respect to claims 17-18, Auer discloses the two frequency signals that are applied for a first/second time (fig 3a-b). Regarding claim 18, it is clear that since each frequency is applied for its own time, it is not applied during the time period of the other frequency.

With respect to claim 19, Auer discloses the charging a capacitor (149a) of the charging circuit during the first period of time and charging a capacitor (162) of a

Art Unit: 2836

transformer circuit during the second period of time, wherein the voltage across the capacitor of the transformer circuit opens the gas valve (col. 6, lines 44-49), as discussed above in the rejections of claims 2 and 6-8.

With respect to claim 20, Auer discloses that the charging circuit capacitor (149a) is not charged during the second period of time (col. 3, lines 49-58; col. 4, lines 26-28) and using a voltage across the capacitor to activate the transformer circuit during the second period of time. Auer discloses that only capacitor 149a is charged during the first period of time. Since the capacitor is not being charged during the second period of time, it would be obvious to one skilled in the art that it discharges. Claim 20 does not state how the transformer circuit is "activated" by the charging circuit capacitor.

Allowable Subject Matter

11. Claim 9 is allowed for reasons provided in the non-final rejection (10/13/09; page 7).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2836

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADI AMRANY whose telephone number is (571)272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jared Fureman can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

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/Stephen W Jackson/

Primary Examiner, Art Unit 2836

Application/Control Number: 10/599,534
Art Unit: 2836

Page 11